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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MATTHIAS MUTH

Appeal 2009-005126
Application 10/517,673
Technology Center 2100

Decided: January 11, 2010

Before JOHN A. JEFFERY, THU A. DANG, and
CAROLYN D. THOMAS, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 22-27. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

STATEMENT OF THE CASE

Appellant invented a method and system 100 for activating an application controller unit coupled to a Controller Area Network (CAN) bus 10. The method and system includes protocol controller unit 42 supplied with a voltage and an application microcontroller 44 supplied with a voltage, after the protocol controller unit 42 is supplied with a voltage and receives a positive comparison. This arrangement allows forming individual sub-networks without activating the entire CAN network.[1]

Independent claim 22 is reproduced below with the key disputed limitations emphasized:

> 22. A method of activating an application controller unit that is coupled a Controller Area Network bus and that carries out an application, comprising:
>
> a transceiver unit receiving an incoming message occurring on the data bus; and
>
> the transceiver unit causing a protocol controller unit coupled to the application controller unit to be supplied with voltage first, before the application controller unit is supplied with voltage;
>
> wherein the transceiver unit and the protocol controller unit are provided on different integrated circuits, and wherein *the protocol controller unit is provided with a crystal oscillator input signal.*

The Examiner relies on the following as evidence of unpatentability:

Hanf ("Hanf I")	US 5,892,893	Apr. 6, 1999
Hanf ("Hanf II")	US 6,438,462 B1	Aug. 20, 2002
Heinrich	US 6,470,393 B1	Oct. 22, 2002

[1] *See generally* Spec. 4-7; Fig. 2.

1. The Examiner rejected claims 22-26 under 35 U.S.C. § 103(a) as unpatentable over Heinrich and Hanf I. Ans. 3-7.[2]

2. The Examiner rejected claim 27 under 35 U.S.C. § 103(a) as unpatentable over Heinrich, Hanf I, and Hanf II. Ans. 7.

THE OBVIOUSNESS REJECTION OVER HEINRICH AND HANF I

Appellant groups the claims as follows: (1) claims 22 and 24-26, and (2) claim 23. Each grouping will be addressed separately.

Claims 22 and 24-26

Regarding representative independent claim 22,[3] the Examiner finds that Heinrich teaches all the limitations, except for the transceiver and the protocol controller being provided on different integrated circuits. Ans. 3-4. The Examiner relies on Hanf I to teach a system where the transceiver and protocol controller unit are on different integrated circuits so as to provide for a more flexible and modular design. Ans. 4-5.

Appellant argues that Heinrich fails to provide the protocol controller unit with a crystal oscillator input because: (1) the clock signal provided to Heinrich's protocol controller is bit clock BITclk derived from internal clock CLKint, which is not synchronized with the clock master; (2) MCclk signal of Heinrich is not the same as quartz oscillator input signal, since periodic

[2] Throughout this opinion, we refer to (1) the Appeal Brief filed July 15, 2008, and (2) the Examiner's Answer mailed September 17, 2008.
[3] Appellant argues claims 22-26. *See* Br. 7-9. Accordingly, we select claim 22 as representative. *See* 37 C.F.R. § 41.37(c)(1)(vii).

synchronization is required; and (3) it would not have been obvious to provide a quartz oscillator input signal in Heinrich because the purpose of Heinrich is to avoid duplication of quartz oscillators. Br. 7-8.

The issue before us, then, is as follows:

ISSUE

Under § 103, has Appellant shown that the Examiner erred in rejecting claim 22 by finding that Heinrich teaches or suggests a protocol controller unit "provided with a crystal oscillator input signal"?

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence:

Appellant's Disclosure

1. The Specification does not explicitly define the term "crystal oscillator input signal." *See generally* Specification.

2. The Specification describes a quartz-controlled clock signal from a quartz oscillator unit in the protocol controller unit 42. Spec. 6:16-17.

Heinrich

3. Heinrich discloses data nodes DK within a CAN data network. Each data node DK has a microcontroller MC, a voltage controller UR, and an interface IF connected to data bus 13. Col. 5, ll. 19-37; Fig. 2.

4. Heinrich discloses part of interface IF, labeled a bit clock recovering part, includes a bit recovering means BTR, an address/shift register ASR, and an address filter AF. Col. 4, ll. 65-67 and col. 5, ll. 38-42; Fig. 3.

5. Heinrich discloses a bit sequence Rx enters bit recovering means BTR, and the bit clock BITclk from the bit recovering means BTR enters the ASR and the bit counter BZ. Col. 6, ll. 6-20; Figs. 2, 3, and 6.

6. Figure 4 shows the details of the BTR. In particular, the bit length counter BLZ is fed with clock pulse CLKint from an oscillator (not shown) of a data node's interface IF. Col. 6, l. 62 – col. 7, l. 4; Figs. 3-4.

7. Heinrich explains that MCclk is outputted from a voltage-controlled oscillator VCO to a frequency divider FT to create clock pulses CLKint. Col. 8, ll. 57-59 and col. 9, ll. 39-42; Fig. 6.

8. With the aid of the bit counter BZ shown in Figure 3, Heinrich discloses the VCO's frequency can be changed. Col. 9, l. 60 - col. 10, l. 35; Fig. 6.

9. Heinrich teaches all the microcontrollers need not have independent quartz oscillator, but a quartz oscillator needs to be provided at some location in the overall system to determine the frequency and clock rate for the entire remainder of the data system. Col. 10, l. 36 - col. 11, l. 4.

PRINCIPLES OF LAW

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). If the Examiner's burden is met, the burden then shifts to the Appellant to

overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

"[T]hough understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment." *Superguide Corp. v. DirecTV Enter., Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004).

ANALYSIS

Based on the record before us, we find no error in the Examiner's obviousness rejection of representative claim 22 which calls for the protocol controller unit to be "provided with a crystal oscillator input signal." At the outset, we note that during examination of a patent application, a claim is given its broadest reasonable construction "in light of the specification as it would be interpreted by one of ordinary skill in the art." *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (internal citations and quotations omitted). The Specification does not define the term, "crystal oscillator input signal." FF 1. The Specification, however, does explain that a quartz-controlled clock signal comes from a quartz oscillator unit in the protocol controller unit 42. FF 2. But the scope and breadth of claim 22 hardly requires this arrangement, and we decline to import this arrangement into the claim. *See Superguide*, 358 F.3d at 875.

Moreover, the claim does not recite from where the input signal comes. We therefore find the phrase "crystal oscillator input signal," under its broadest reasonable construction, reads on a signal that inputs into or originates from a crystal oscillator directly or indirectly. Based on this construction, we further note that the input signal does not require periodic synchronization, as Appellant contends (Br. 7), nor does the recited process have an active step of inputting the signal to a recited unit.

As the Examiner explains (Ans. 4), Heinrich discloses a protocol controller unit that includes an address/shift register ASR and an address filter AF within an interface IF. *See* FF 4. ASR receives the bit clock BITclk signal, which is the output from a bit recovering means BTR. *See* FF 5-6. The bit clock BITclk, however, originates in part from clock pulses or signals CLKint that enter the BTR. *See id.* Moreover, Heinrich states that MCclk is fed from a voltage-controlled oscillator VCO to a frequency divider FT to create clock pulses CLKint, and that CLKint is from an interface IF's oscillator. *See* FF 6-7. Heinrich therefore teaches that the protocol controller unit (e.g., ASR and AF) is provided with a crystal oscillator input signal (e.g., BITclk) whose signal originates indirectly from the crystal oscillator.

Additionally, Heinrich discloses BITclk enters bit counter BZ of an oscillator. FF 5. This BITclk signal, in turn, is used to set a value that enters the VCO and is also provided to the ASR of the protocol controller unit. *See* FF 5 and 8. Thus, Heinrich also teaches that an input signal (i.e., BITclk) provided to the protocol controller unit (e.g., ASR) is also inputted indirectly into an interface IF's crystal oscillator (FF 6), as the Examiner indicates (Ans. 8-9). Moreover, the quartz oscillator determines the frequency and

clock rate for the entire remainder of the data system. FF 9. Thus, Heinrich discloses more than the quartz oscillator's clock signal being provided to a microcontroller. Br. 7. Heinrich further teaches the protocol controller unit is provided with a signal (i.e., BITclk) that inputs into a VCO or crystal oscillator or "a crystal oscillator input signal."

For the above reasons, Heinrich teaches a protocol controller unit provided with a crystal oscillator input signal recited in claim 22. We therefore sustain the Examiner's rejection of claim 22, and claims 24-26 which fall with claim 22.

Claim 23

Claim 23 recites that the transceiver unit conveys an incoming message to the protocol controller, the protocol controller unit compares the message with a reference, and if there is a match, the protocol controller unit sends an acknowledgement to the transceiver unit that activates the application controller unit. The Examiner finds that Heinrich teaches these limitations. Ans. 5, 9, and 10. Appellant argues that the transceiver unit and the protocol controller of Heinrich are part of the same circuit and therefore cannot handshake between each other as claim 23 allegedly requires. Br. 8. Appellant also contends that Hanf I does not overcome Heinrich's deficiencies. *Id.*

The issue before us, then, is as follows:

ISSUE

Under § 103, has Appellant shown that the Examiner erred in rejecting claim 23 by finding that Heinrich and Hanf I collectively teach or

suggest the protocol controller unit sending an acknowledgement to the transceiver unit?

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence:

Heinrich

10. Heinrich discloses the microcontroller MC wakes up when either: (1) an activating address filter of the interface IF has recognized that the address of bit sequence transmitted via data bus 13 is intended to activate or wake up the associated microcontroller, or (2) when interface IF is fed with an external wake-up signal Wext through a wake-up input WE. Heinrich disclose the contents of the ASR are compared with the contents of the address filter AF. This information is fed to a mask register MR, and a release input FE is sent to an AND element when all address bits are present in the address shift register ASR. Col. 5, ll. 31-61 and col. 6, ll. 21-31; Fig. 3.

11. When one of three wake-up signals (Wint, Wprio, or Wext) reaches the OR element, a wake-up signal W is produced at the output of the OR element and activates the voltage controller UR, which in turn, also activates the microcontroller MC. Heinrich teaches microcontroller MC is fed with operating voltage from voltage controller UR when interface IF releases a connection between voltage supply line 15 and voltage controller UR and wakes up the microcontroller MC. Col. 5, ll. 24-37 and col. 6, ll. 32-46; Figs. 2 and 3.

ANALYSIS

We find no error in the Examiner's rejection of claim 23 based on the combination of Heinrich and Hanf I. Appellant contends that because the protocol controller unit Heinrich unit is within the interface IF, there can be no "sending an acknowledgement to the transceiver" as recited in claim 23. We disagree for the following reasons.

Heinrich discloses the block diagram in Figure 3 is merely *part* of the interface – not the entire interface. FF 4. Thus, the circuitry within the schematic in Figure 3 that make up the protocol controller unit are separate from other parts of the interface, such that the transceiver unit that sends and receives data. *See* FF 3-4. Thus, the transceiver unit and the protocol controller unit are not the same circuit. *See id.* For example, the interface IF is connected to data bus 13 and receives incoming data and messages prior to transmission of the bit sequence Rx to the bit recovering part of the interface shown in Figure 3. *See* FF 3-5. As shown in Figure 3, the bit recovering clock BTR also has separate circuitry from the address shift register ASR and the address filter AF. *See* FF 4-5. Additionally, when Hanf I's teaching is combined with Heinrich,[4] the transceiver and the protocol controller units are located on different integrated circuits. Thus, even though the transceiver unit and the protocol controller unit are both part of the interface IF, they have different circuitry. Information, such as

[4] Appellant has not disputed that the rejection lacks a rational basis for combining Hanf I with Heinrich. Rather, Appellant disputes that Hanf I does not teach handshaking. *See* Br. 8.

wake-up signal W or an acknowledgement, exiting from the bit recovering part, which includes the protocol controller unit, will therefore be sent to another part of the interface having the transceiver unit on a different integrated circuit.

Moreover, Figure 3 shows a wake-up signal W exiting the bit recovering part to wake up the microcontroller MC. FF 11. However, Figure 2 does not show or state the same wake-up signal W is sent directly to the UR or microcontroller MC prior to activation of the microcontroller MC or application controller. *See* FF 10-11. Thus, once a wake-up signal W is produced at the output of OR (FF 11) within the bit recovering part of the interface IF, the wake-up signal W must be sent to another part of the interface IF, including the transmission portion of the transceiver unit of the interface IF, before activating the microcontroller MC or application controller unit (FF 10-11). We therefore find that Heinrich teaches the limitation of "the protocol controller unit sending an acknowledgement to the transceiver unit" as recited in claim 23.

Because Heinrich teaches the above disputed limitation, we need not address Appellant's argument (Br. 8.) concerning whether Hanf I teaches the purported missing limitations of claim 23.

To conclude, Heinrich reasonably teaches the step of "the protocol controller unit sending an acknowledgement to the transceiver unit" recited in claim 23.

THE OBVIOUSNESS REJECTION OVER HEINRICH, HANF I, AND HANF II

Regarding claim 27, the Examiner finds that Heinrich and Hanf I collectively teach all the limitations, except for two voltage regulators. Ans. 7. The Examiner cites Hanf II to teach this purportedly missing limitation, and states an ordinarily skilled artisan would be motivated to include two regulators in one circuit for better operation control. *Id.* Appellant argues that Hanf II only teaches a single voltage regulator supplying voltage to the protocol controller and the application controller. Br. 9. However, we find the Examiner's and Appellant's discussion of two regulators is not commensurate in scope with claim 27.

While claim 27 recites a "second voltage regulator," claim 27 depends from claim 25 not claim 26 which recites the "first voltage regulator." Thus, claim 27 does not require two voltage regulators. Moreover, the Examiner finds Heinrich discloses a voltage regulator UR supplies voltage to the application controller in the event of a match between an incoming message and a reference message. Ans. 7. Appellant has not disputed this finding and only argues that Hanf II has a single regulator to supply both the protocol controller and the application controller. Br. 9. Thus, Appellant has not persuasively rebutted the Examiner's finding that Heinrich teaches the inclusion of a voltage regulator. Accordingly, we are not persuaded of error in the Examiner's obviousness rejection of claim 27 based on Heinrich, Hanf I, and Hanf II.

CONCLUSION

Appellant has not shown that the Examiner erred in rejecting claims 22-27 under § 103.

ORDER

The Examiner's decision rejecting claims 22-27 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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